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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,150	10/22/2003	Huan-sheng Hwang	9314-49	6598
54414 7590 10/01/2008 MYERS BIGEL SIBLEY & SAJOVEC, P.A. P.O. BOX 37428 RALEIGH, NC 27627				
EXAMINER				
A. MINH D				
ART UNIT		PAPER NUMBER		
2821				
MAIL DATE		DELIVERY MODE		
10/01/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/691,150

**Applicant(s)**

HWANG ET AL.

**Examiner**

MINH D. A

**Art Unit**

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 8/15/08.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17, 18 and 20-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20-38 is/are allowed.
- 6) ☒ Claim(s) 17-18, 39-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

This is a response to the Application's amendment submitted on 8/15/08. On virtue of this amendment, claims 17-18, 20-43 are currently presented in the instant application.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Izadian (U.S Patent No: 5, 300, 936).

Regarding claim 17, Izadian discloses in figure 1 that, an antenna, comprising: a rectangular ground plane (28); a rectangular conductor loop (26) overlying the ground plane (28) and having a side substantially aligned with the rectangular ground plane (28); a monopole (22) comprising a substantially linear conductor that extends substantially perpendicular to the ground plane (28) from a coupling the rectangular conductor loop (26) on the ground plane. Col.3, lines 45-58.

Izadian does not disclose that, the rectangular conductor loop having the side substantially aligned with the edge of the rectangular ground plane; the monopole extends substantially perpendicular to the edge of the ground plane from a coupling point at the corner of the rectangular conductor loop at the edge of the ground plane.

However, this difference is not of patentable merit, since the conductor loop (26) of Izadia could be located into another position of ground-plane and the monopole (22) could be located into another position of ground-plane, therefore, to design the conductor loop (26) and the monopole (22) at the edge of the ground-plane upon a particular application or environment of use would have been deemed obvious to a person skilled in the art.

Izadian discloses the claimed invention except for wherein the conductor loop has dimensions of about 18 mm by about 8 mm, has a longer side thereof substantially aligned with the edge of the ground plane, and is separated from the ground plane by a distance in a frequency range from about 5 mm to about 10 mm; and wherein the monopole has a length of about 36 mm.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the dimensions for the loop conductor and selecting the distance in a frequency range for separate from the ground-plane and selecting the length for monopole, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

3. Claims 39-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Suguro (U.S Patent No: 6,459,916) in view of Klemens et al (U.S Patent No: 6, 239, 755).

Regarding claim 39, Suguro discloses in figures 4-5, a frame, a radio communication (see figure 1, a ground plane (under dielectric sheet (3)) disposed on the

circuit (30) supported by the frame (portable telephone) and antenna (flat antenna(40)) electrically coupled to the radio communication circuit (31), attached to the frame (92) and comprising commonly fed conductor loop(2) and monopole (14) and helical elements (see figure 4). Col.2, lines 54-67 to col.5, lines 1-25.

Surguro does not teach wherein the monopole is positioned within the helical element along an axis of the helical element.

Klements et al disclose in figure 6A, the monopole (radiator (604) is positioned within the helical element (606) along an axis of the helical element (606).

It would have been obvious to one having ordinary skill in the art to employ the radio communication section (31) disclosed in Reference of Surguro in the multiple antenna of Izadian to achieve the claimed invention. As disclosed in Reference of Surguro, the motivation for the combination would be to improve high performance radio frequency for mobile phone.

Regarding claim 40, Suguro discloses in figures 4-5, wherein the conductor loop (conductor (2)) has a reflective feature therein since the conductor loop is conductive or current can be drive it.

Regarding claims 41-42, Suguro discloses, in figures 4-5, the reflective feature having a corner.

Regarding claim 43, the combination of Izadia and Klemens disclose the claimed invention except for a frequency range from about 1.5 GHz to about 2.5 GHz or range from about 800 MHz to about 900 MHz. However, this difference is not of patentable merit, since arrange from difference frequency is operated in the same manner, to

provide a high frequency for mobile or cellular phone. Therefore, to employ a frequency range from about 1.5 GHz to about 2.5 GHz or range from about 800 MHz to about 900 MHz for antenna of the Izadia upon a particular application or frequency of use would have been deemed obvious to a person skilled in the art.

***Allowable Subject Matter***

Claims 20-38 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Prior art does not teach that, a conductor loop support by the frame and overlying the ground plane and wherein the monopole support by the frame and extending off the ground plane from the a location overlying ground plane and wherein the monopole supported and the conductor loop are configured to be coupled to a common feed-point (1) in combination with all limitations recited in independent claim 20 (claims 21-38 would be allowed, since they are independent claim 20.

***Citation of relevant prior art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Woo (US 6,317,086) and Bowers et al (US 5,914,692) are cited to show a multiple loop antenna.

***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Dieu A whose telephone number is (571) 272-

1817. The examiner can normally be reached on M-F (5:30 AM-2:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Owens Douglas W can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner Minh A

Art Unit 2821

9/14/08

/Douglas W Owens/  
Supervisory Patent Examiner, Art Unit 2821  
September 23, 2008